



**PROCEEDINGS OF ABSTRACTS
VIII. INTERNATIONAL
AGRICULTURAL, BIOLOGICAL,
LIFE SCIENCE CONFERENCE
AGBIOL 2026**

06-09 SEPTEMBER 2026

ISTANBUL, TÜRKİYE



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**Organized by
Trakya University
İstanbul Beykent University
International Researchers Association**

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WELCOME NOTES

You are welcome to our VIII. AGBIOL Conference that is organized by Trakya University, Beykent University and International Researchers Association. The aim of our conference is to present scientific subjects of a broad interest to the scientific community, by providing an opportunity to present their work as oral or poster presentations that can be of great value for global science arena. Our goal was to bring three communities, namely science, research and private investment together in a friendly environment of Edirne, Turkey in order to share their interests and ideas and to get benefit from the interaction with each other.

In September 2018, we organized the first AGBIOL Conference with more than 700 scientists and researchers from all over the world with over 800 scientific papers. Due to COVID-19 situation, II. AGBIOL 2020 has organized fully on-line event which was one of the biggest online conferences in recent years in the world with 499 papers and 1133 authors with 333 oral and 166 e-poster presentations from 55 countries. Due to COVID-19 situation, AGBIOL 2021 was organized online again. AGBIOL 2022 conference was organized with a worldwide participation from 44 countries over 522 papers contributed by over 1300 authors. AGBIOL 2023 was organized with a record and worldwide participation from 33 countries 833 papers contributed by over 2000 authors with 522 oral and 311 poster presentations. AGBIOL 2024 consisted of 835 papers contributed by about 2000 authors with worldwide record participation again from 55 countries with 522 oral and 311 poster presentations. AGBIOL 2025 was organized with a worldwide record participation from 60 countries 988 papers contributed over 2300 authors with 400 oral and 588 poster presentations.

The AGBIOL 2026 is normal participation as well as with online participation in Beykent University in Istanbul, Turkey on 06-09 September, 2026. The program included oral talks by invited prominent scientists and oral and e poster presentations by participants in selected topics from the submitted abstracts focusing on Agriculture, Biology and Life Sciences topics.

There is a worldwide record participation again in AGBIOL 2026 from 61 countries 1061 papers contributed over 2500 authors with 500 oral and 488 poster presentations.

With care for our nature and environment, we aim the green congress, meaning that as little as possible papers will be used. Abstract book is published in electronic book and is distributed to the participants by e mail for online participants. All the e-posters are prepared in electronic form and then submit to via the conference e mail and exhibited in electronical poster boards as well as in online e poster hall in our web page during the conference.

The participants with paid conference fee accessed all the normal and virtual presentation talks in each session, as well as to visit the virtual poster hall via preliminary provided. The abstracts were published in the Conference Abstract and Proceedings Book. Participants might send us their full papers, which based on their preferences are published either in our Conference Abstract and Proceedings Book or in selected International Indexed Scientific Journals.

Conference Topics:

Agriculture, Forestry, Life Sciences, Agricultural Engineering, Aquaculture and Biosystems, Animal Science, Biomedical science, Biochemistry and Molecular Biology, Biology, Bioengineering, Biomaterials, Biomechanics, Biophysics, Bioscience, Biotechnology, Botany, Chemistry, Chemical Engineering, Earth Sciences, Environmental Science, Food Science, Genetics and Human Genetics, Medical Science, Machinery, Pharmaceutical Sciences, Physics, Soil Science.

We would like to thank all of you for joining this conference and we would like to give also special thanks to TUBITAK and collaborators for giving us a big support to organize this event.

Prof Dr Yalcin KAYA

Head of the Organizing Committee

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MICROPLASTICS IN SOIL ECOSYSTEMS: IMPACTS ON MICROBIAL COMMUNITIES, NUTRIENT CYCLING, AND AGRONOMIC SUSTAINABILITY

Daniela Todevska^{1,} & Natalija Atanasova- Pancevska²*

¹ *Faculty of Agriculture, Goce Delcev University, Stip, NORTH MACEDONIA*

² *Department of Microbiology and Microbial Biotechnology St. Cyril and Methodius University, Skopje, NORTH MACEDONIA*

daniela.todevska@ugd.edu.mk

ABSTRACT

Microplastics (MPs), defined as synthetic polymer particles smaller than 5 mm, have become pervasive contaminants in terrestrial ecosystems. Soils, particularly agricultural soils, are now recognized as major sinks for MPs due to inputs from plastic mulching, sewage sludge, compost, irrigation water, and atmospheric deposition. Their persistence, diverse morphology, and chemical complexity enable MPs to interact directly with soil microorganisms, which are central to nutrient cycling, organic matter decomposition, and plant health. This review synthesizes current knowledge on the ecological risks and microbial responses associated with MPs in soil. MPs alter soil physical properties such as porosity, bulk density, and water retention, thereby reshaping microbial habitats. They also act as carriers of persistent organic contaminants, heavy metals, and antibiotics, amplifying combined toxicity. At the microbial level, MPs induce shifts in community composition, favoring taxa capable of colonizing plastic surfaces or tolerating oxidative stress, while reducing the abundance of nitrifiers and ammonia oxidizers. Functional consequences include disrupted carbon, nitrogen, and phosphorus cycling, altered enzyme activities, and increased greenhouse gas emissions. Plant–microbe symbioses, including nitrogen-fixing bacteria and arbuscular mycorrhizal fungi, are impaired, leading to reduced nutrient uptake and crop productivity. Although certain microorganisms demonstrate limited biodegradation potential, ecological benefits are outweighed by concerns regarding long-term accumulation, persistence of additives, and potential horizontal gene transfer of resistance traits. Significant knowledge gaps remain, particularly regarding chronic field-scale impacts under diverse agro-climatic conditions. Future research should integrate molecular, ecological, and biogeochemical approaches to assess cumulative effects and inform sustainable strategies for mitigating MP pollution in soils.

Keywords: Microplastics, Soil microorganisms, Microbial community shifts, Biodegradation, Carbon and nitrogen cycling, Soil fertility, Ecological risks, Plastisphere, Environmental sustainability